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10/805,934	03/22/2004	Piotr Findeisen	200313412-1	1044

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EXAMINER	
ARCOS, CAROLINE H	

ART UNIT	PAPER NUMBER
2195	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/805,934	FINDEISEN, PIOTR	
	Examiner	Art Unit	
	CAROLINE ARCOS	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7-11 and 17-21* is/are rejected.

7)☒ Claim(s) *2- 6,12-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-21 are pending for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 21 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

4. Claims 21 is rejected under 35 U.S.C. 101 because the claimed invention is directed towards an apparatus comprising means for running a thread, means for determining elapsed time, means for determining for each elapsed time, means for reducing to a selected value and means for determining a value. All these means are all software modules/ functions and an apparatus of such software lacking the physical components (hardware) is directed to non-statutory subject matter.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 8-10, 11 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al. (US 5,774,718), in view of Ballantyne (US 2002/0078121 A1).

7. As per claim 1, Aoshima teaches substantially the invention as claimed including a processor-based method for determining processor usage by a thread, comprising:

determining elapsed times between execution points of the thread based on start times and stop times associated with the execution points (fig. 6);

determining for each elapsed time whether the thread was idle during the elapsed time by comparison of the elapsed time to a first threshold value (fig. 6; col. 2, lines 42-45; wherein comparing the cumulative CPU time used by one process to a threshold value to determine process is idle/ non-interactive).

8. Aoshima doesn't explicitly teach that Wherein each execution point is an instruction in program code; reducing to a selected value each elapsed time for which the thread was determined to be idle; and determining a value indicative of processor usage by the thread as a function of the elapsed times.

9. However, Ballantyne teaches reducing the elapsed time to a selected value for which the thread was determined to be idle (Par. [0082], lines 12-15; par. [0083], lines 4-9, wherein when it is determined that the thread is waiting on a synchronization object (idle), the remaining unutilized portion of the elapse time is given to another thread which is reducing the elapse time to a selected value).

10. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Aoshima and Ballantyne because Ballantyne's teaching of reducing the elapsed time would improve scheduling techniques and increase CPU efficiency.

11. The combined method of Aoshima and Ballantyne doesn't not explicitly teach that each execution point is an instruction in program code. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a program is composed of multiple threads and that each execution point of the thread is an instruction in program code that is executed.

12. As per claim 8, Ballantyne teaches determining elapsed times comprises determining the elapsed time using a high-resolution clock (par. [0064], lines 5-7; par. [0064], lines 15-15

13. As per claim 9, Ballantyne teaches the high-resolution clock comprises a CPU clock (par. [0064], lines 5-7; par. [0064], lines 15-16).

14. As per claim 10, Ballantyne teaches the execution points comprise entry points and exit points of functions called by the thread (page 43, lines 18-27; fig. 7, element 700).

15. As per claim 11, Aoshima teaches a computer-readable storage medium configured with instructions for causing a processor of a data processing arrangement to perform steps

comprising:

running a thread of a multi-threaded program (col. 1, lines 7-9) ;

determining elapsed times between execution points of the thread based on start times and stop times associated with the execution points(fig. 6);

determining for each elapsed time whether the thread was idle during the elapsed time by comparison of the elapsed time to a first threshold value(fig. 6; col. 2, lines 42-45; wherein comparing the elapsed time used by one process to a threshold value to determine process is idle/ non-interactive).

16. Aoshima doesn't explicitly teach that reducing to a selected value each elapsed time for which the thread was determined to be idle; and determining a value indicative of processor usage by the thread as a function of the elapsed times.

17. However, Ballantyne teaches reducing the elapsed time to a selected value for which the thread was determined to be idle (Par. [0082], lines 12-15; par. [0083], lines 4-9, wherein when it is determined that the thread is waiting on a synchronization object (idle), the remaining unutilized portion of the elapse time is given to another thread which is reducing the elapse time to a selected value).

18. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Aoshima and Ballantyne because Ballantyne's teaching of reducing the elapsed time would improve scheduling techniques and

increase CPU efficiency.

19. As per claims 18-20, they are computer readable medium claims of the method claims 8-10 respectively. Therefore, they are rejected for the same reason as claims 8-10 above.

20. As per claim 21, it is the apparatus claim of the method claim 11. Therefore, it is rejected for the same reason as claim 11 above.

21. Claims 7, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al. (Aoshima) (US 5,774,718), in view of Ballantyne (US 2002/0078121 A1) and further in view of Xu et al. (Xu) (Dynamic instrumentation of threaded applications, ACM, 1999, Pages 49-59).

22. As per claim 7, neither Aoshima nor Ballantyne teach the threads comprise threads running in a Java virtual machine. However, Xu teaches the threads comprise threads running in a Java virtual machine (Page 50, section 1, 4th paragraph, lines 4-7; page 50, subsection 3.1, 2"d paragraph, lines 9-10).

23. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to have combined the teaching of Aoshima: Ballantyne and Xu because Xu's teaching of running the threads in a Java virtual machine would improve CPU utilization and Java graphics and game applet.

24. As per claim 7, it is computer readable medium claim of the method claim 7. Therefore, it is rejected for the same reason as claim 7 above.

Allowable Subject Matter

25. Claims 2- 6, 12- 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

26. Applicant arguments filled 01/29/2008 have been fully considered but they are not persuasive.

27. In the remarks applicant argues that:

(1) Monitoring idle time by comparing idle time to a threshold in Aoshima doesn't read on determining the thread is idle during the elapsed time.

(2) Preempting idle thread in Ballantyne doesn't read on reducing to a selected value.

28. Examiner respectfully disagree with the applicant :

1. As to point (1), applicant supports his argument by mentioning that the elapsed time is compared to a threshold in order to determine whether the thread is idle. The claim limitation is not specific enough to clarify what is defined by idle and can the thread be idle for the whole duration of the elapsed time. Examiner interprets that the thread is idle in the whole duration of the elapsed time which is taught by Aoshima (fig.18,

element c, d). One of ordinary skill in the art at the time the invention was made would know that monitoring is done over a period of time and is compared against some standard (threshold) otherwise there is no reason for monitoring if there is no comparison against any standards. Aoshima teaches monitoring a time segment (fig. 18) elapsed time from element "c" to element "d" is proven to be idle (non - interactive) by comparing the clapse timed by a threshold.

2. As point (2), applicant supports his argument by mentioning that the claimed elapsed time is reduced if it is determined that during the elapsed time the thread was idle. One of ordinary skill in the art at the time the invention was made would know that elapsed time is based on a start and a stop time between execution points Ballantyne teaching of detecting idle thread which are waiting for data synchronization is between the elapsed time of the thread execution. From the start of the thread execution until the preemption time which is the stop time, when it is determined that the thread is waiting on a synchronization object (idle), the remaining unutilized portion of the elapse time is given to another thread which is reducing the elapse time / execution time to a selected value which is the time value from the start of the execution to the preemption time).

Conclusion

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

30. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

31. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAROLINE ARCOS whose telephone number is (571)270-3151. The examiner can normally be reached on Monday-Thursday 7:00 AM to 5:30 PM.

33. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

34. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patent examiner
Caroline Arcos

/Meng-Ai An/
Supervisory Patent Examiner, Art Unit 2195